

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

3 In the Application of )  
4 Entwistle, et al. ) Examiner: John K. Fristoe, Jr.  
5 )  
6 for VALVE ARRANGEMENT ) Group Art Unit: 3753  
7 )  
8 ) Confirmation No.: 7090  
9 )  
10 Serial No.: 10/573,873 ) Our Docket No.: 6495-0155WOUS  
11 )  
12 Filed: March 29, 2006 )

Hartford, Connecticut, June 9, 2009

Mail Stop APPEAL  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

## SUBSTITUTE APPEAL BRIEF

Dear SIR:

Appellants respectfully submit the following Substitute Appeal Brief in response to the Notice of Non-Compliant Appeal Brief issued May 14, 2009 in the above-identified application.

In order to obviate any possible confusion, Appellants hereby submit a complete Substitute Brief, even though only select sections of the original Brief were identified as non-compliant.

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## (I) Real Party in Interest

The real party in interest in the present application is Danfoss A/S, as evidenced by the assignment recorded at the United States Patent and Trademark Office March 29, 2006, Reel 017756 / Frame 0916.

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## **(II) Related Appeals and Interferences**

There are no other Appeals, Interferences, or judicial proceedings, known to any inventor, attorney, agent or other person substantively involved in preparation or prosecution of the application, which will directly affect or be directly affected by or have a bearing on the Board's decision on the pending Appeal.

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### **(III) Status of Claims**

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Claims 1-10 are pending. Claims 2-10 depend from claim 1.

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Claims 1-5 and 8-10 are rejected under 35 USC § 102(b) as anticipated by Tan (U.S. Patent No. 5,687,759); claims 6 and 7 are rejected under 35 USC § 103(a) as obvious over Tan in view of Kubiak (U.S. Patent No. 4,025,045). The rejections of claims 1-10 are appealed.

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#### **(IV) Status of Amendments**

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No amendments have been filed after final rejection.

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The amendment filed June 12, 2008 has been entered in the application, but was not considered by Examiner, as evidenced by the grounds for rejection stated in the first paragraph on page 3 of the Final Office Action issued September 8, 2008.

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## (V) Summary of Claimed Subject Matter

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Referring to the

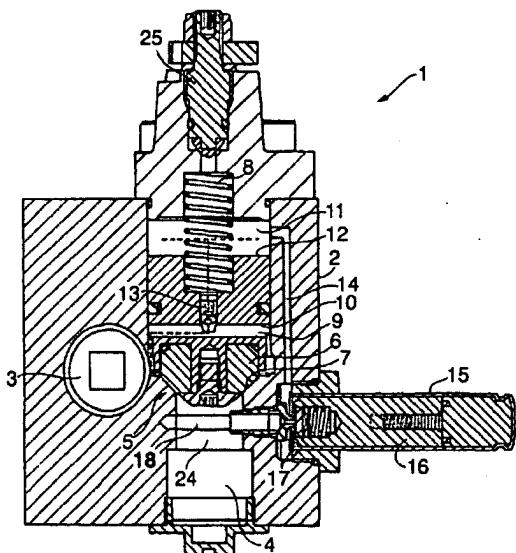
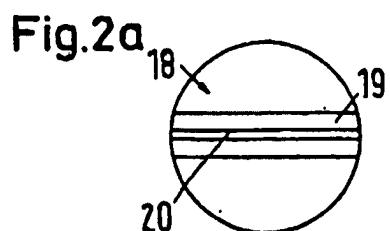


FIG. 1

Specification and Drawings, the present invention relates to a suction nozzle arrangement 18 (page 7, line 32) that is provided in a pilot-controlled valve arrangement 1 (page 6, line 4), as shown in Appellants' Figure 1. The suction nozzle arrangement is disposed *in a flow path* between an inlet connection 3 (page 6, line 5) and an outlet connection 4 (page

14 6, line 5). The suction nozzle arrangement 18 is disposed at one end  
15 of a channel arrangement 14 (page 7, line 1) formed in the pilot-  
16 controlled valve arrangement 1. A pressure chamber 11 (page 6, line  
17 24) is disposed at the other end of the channel arrangement 14. A  
18 pilot valve 15 (page 7, line 4) is disposed in the channel arrangement  
19 14. When the pilot valve 15 is first opened, fluid flows from the  
20 pressure chamber 11 to the outlet connection 4 through the channel  
21 arrangement 14 and the suction nozzle arrangement 18. Removing  
22 fluid from the pressure chamber 11 lifts a valve element 6 (page 6,  
23 line 9) from a valve seat 7 (page 6, line 9), opening a closing device 5  
24 (page 6, line 8) disposed in the flow path from the inlet connection 3  
25 to the outlet connection 4.

26 The fluid flowing through the  
27 flow path interacts with the suction



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1 nozzle arrangement 18 *to suck fluid from the pressure chamber 11*  
2 through the channel arrangement 14. (page 2, line 25 to page 3, line  
3 17 and page 7, lines 32-33). In one embodiment, as shown in  
4 Appellants' Figure 2a, the suction nozzle arrangement 18 has a pipe  
5 19 (page 8, line 3) extending across the flow path; the pipe 19 has a  
6 slot 20 (page 8, line 6) directed toward the outlet connection 4,  
7 through which the fluid is sucked.

8 Locating Appellants' suction nozzle arrangement 18 *in* the flow  
9 path between the inlet connection 3 and the outlet connection 4 is  
10 what causes the *suction* of Appellants' suction nozzle arrangement 18.  
11 The suction occurs because flow velocity *in* a flow path is higher than  
12 flow velocity at the wall of the flow path. Thus, Bernoulli's principle  
13 causes static pressure to be lower in the middle of the flow path than  
14 at the boundary of the flow path. Thus, locating the suction nozzle  
15 arrangement 18 *in* the flow path advantageously ensures that the  
16 pressure in the pressure chamber 11 remains at a reduced value while  
17 the closing device 5 is opened. The suction nozzle arrangement 18  
18 thereby prevents heavily varying performance during opening (valve  
19 chatter), which is known to be a deficiency of previous pilot-  
20 controlled valves. (page 3, lines 8-18 and page 2, lines 15-18).

21 Advantageously, the suction nozzle arrangement 18 includes a  
22 suction nozzle directed toward an outlet connection to block fluid  
23 entry into the channel arrangement 14. (page 8, lines 27-31).

24 **Claim 1** recites a valve arrangement 1 with a housing 2 (page 6,  
25 line 4), an inlet connection 3 and an outlet connection 4 (page 6, lines  
26 4-5), which are connected with each other via a flow path (page 6, line  
27 8), in which is located a closing device 5, which has a valve seat 7 and  
28 a valve element 6 interacting with the valve seat (page 6, lines 8-10),

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1 the valve element being loaded in the direction of the valve seat by a  
2 resetting device 8 (page 6, lines 12-16) and being acted upon on the  
3 side facing the valve seat by a pressure in a first pressure chamber 9  
4 (page 6, lines 18-21), said pressure corresponding to the pressure in  
5 the inlet connection 3, when the closing device is closed, and on the  
6 side 12 facing away from the valve seat by the pressure in a second  
7 pressure chamber 11 (page 6, lines 23-26), which is connected with  
8 the outlet connection via a channel arrangement 14 (page 7, lines 1-3),  
9 in which is located at least one auxiliary valve 15 (page 7, lines 3-9),  
10 and with the first pressure chamber via a throttle 13 (page 6, lines 28-  
11 31), wherein the channel arrangement ends in a suction nozzle  
12 arrangement 18 (page 7, line 32 to page 9, line 2), which is located in  
13 the flow path (page 7, lines 32-33).

14 **Claim 6** depends from claim 1, and further recites the suction  
15 nozzle arrangement 18 has a pipe 19, which has a slot 20 in the  
16 direction of the outlet connection 4. (page 8, lines 1-20).

17 **Claim 9** depends from claim 1, and further recites the suction  
18 nozzle arrangement 18 has an annular nozzle 21 (page 8, line 23),  
19 whose opening is directed towards the outlet connection 4.

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#### **(VI) Grounds of Rejection to be Reviewed on Appeal**

1. Whether claims 1-5 and 8-10 are anticipated by Tan (U.S. Patent No. 5,687,759) under 35 USC § 102(b).

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2. Whether claims 6 and 7 are obvious over Tan in view of Kubiak (U.S. Patent No. 4,025,045) under 35 USC § 103(a).

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## (VII) Argument

### 2 REJECTIONS UNDER 35 USC § 102

3 An anticipation rejection is improper unless *every* element of the  
4 claimed invention is *identically* shown in a *single* reference. *In re Bond*,  
5 910 F.2d 831, 15 U.S.P.Q. 1566, 1567 (Fed. Cir. 1990).

### 6 Claims 1-5 and 8-10 are not anticipated by Tan

7 Claim 1 recites a valve arrangement with a suction nozzle  
8 arrangement located in a flow path. Claim 1 also recites that a closing  
9 device is located in the flow path, and that the closing device includes  
10 a valve seat and a valve element, the valve element being loaded in  
11 the direction of the valve seat by a resetting device and being acted  
12 upon on the side facing the valve seat by a pressure in a first pressure  
13 chamber, said pressure corresponding to the pressure in the inlet  
14 connection, when the closing device is closed, and on the side facing  
15 away from the valve seat by the pressure in a second pressure  
16 chamber, which is connected with the outlet connection via a channel  
17 arrangement. More simply, claim 1 identifies the flow path as the  
18 *main* flow path through the valve arrangement.

19 Tan does not anticipate claim 1 at least because Tan fails to  
20 show or disclose a suction nozzle arrangement, as recited by claim 1.  
21 Tan also fails to show or disclose a suction nozzle arrangement,  
22 which is located in a flow path, as further recited by claim 1.

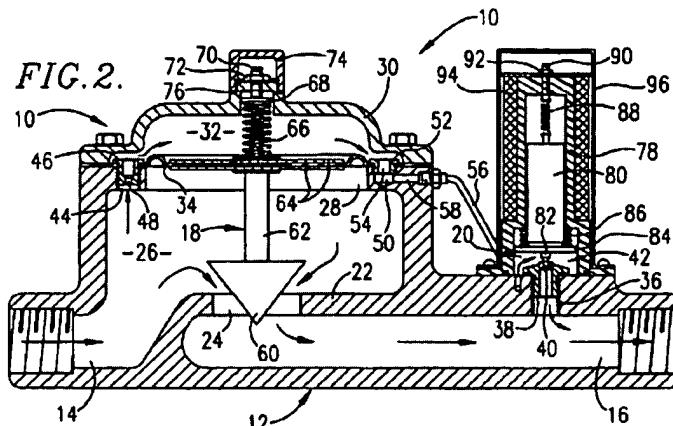
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1 At most, Tan discloses (at column 3, lines 41-48) a fast-response  
2 servovalve 10 having a primary fluid passage, a primary valve 18 for  
3 metering flow through the primary fluid passage, and a pilot valve 20  
4 for controlling operation of the primary valve 18, as shown in Tan's  
5 Figure 2:



Tan's pilot valve 20 does not show or disclose a suction valve arrangement. At most, the pilot valve 20 includes a restricted orifice 40. The restricted orifice 40 is located entirely outside Tan's primary fluid passage. Consequently, the restricted orifice 40 opens on a region of *maximum* static pressure according to Bernoulli's principle. (See Appellants' Response submitted December 4, 2008, pages 6-8). Thus, Tan's restricted orifice 40 does not provide suction on Tan's control chamber 32, via Tan's fluid passage 58, while Tan's primary valve 18 is fully opened.

Since Tan's restricted orifice 40 does not provide suction, Tan's restricted orifice is not a suction nozzle arrangement, as recited by claim 1. Moreover, *neither* Tan's pilot valve 20 *nor* Tan's restricted orifice 40 is *in* a flow path such as the flow path recited by claim 1. For at least these reasons, Tan fails to anticipate claim 1.

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1            Since Tan does not anticipate claim 1, the rejections of claim 1  
2 and of dependent claims 2-5 and 8-10 are improper under 35 USC §  
3 102. Accordingly, Appellants respectfully request that the improper  
4 rejections be reversed.

5            **Claim 2 is not anticipated by Tan**

6            Tan fails to show or disclose at least one suction nozzle, which  
7 is directed towards the outlet connection, as recited by claim 2. Tan  
8 also fails to show or disclose at least one suction nozzle, which has a  
9 bordering wall, whose outside is exposed to the fluid flowing in the  
10 flow path, as further recited by claim 2.

11           As discussed with reference to claim 1, Tan shows nothing  
12 more than a pilot valve 20 including a restricted orifice 40 that is  
13 housed in a threaded opening 36.

14           Appellants respectfully submit that Tan's orifice 40 is not  
15 directed "towards the outlet (to the right of element 16)", as Examiner  
16 asserted in the Advisory Action issued December 30, 2008. (emphasis  
17 added). Rather, as can clearly be seen in Tan's Figure 2, Tan's orifice  
18 40 is directed toward a longitudinal axis of Tan's element 16. Thus,  
19 even if Tan's orifice 40 was mistakenly considered to be a suction  
20 nozzle, Tan still would not show or disclose a suction nozzle directed  
21 toward an outlet connection, as recited by claim 2.

22           Additionally, Tan's threaded opening 36 is *not* a bordering wall,  
23 whose outside is exposed to the fluid flowing in a flow path, as recited  
24 by claim 2. If anything, the *inner surface* of Tan's threaded opening 36  
25 is exposed to a fluid. However, Appellants respectfully submit that  
26 the fluid within Tan's threaded opening 36 is not flowing in a flow  
27 path such as the flow path recited by claim 2. Even if one overlooked

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1 the blatant difference between an outside and an inner surface, Tan  
2 still would not show or disclose a bordering wall, whose outside is  
3 exposed to the fluid flowing in a flow path, as recited by claim 2.  
4 Thus, Tan fails to identically show or disclose each and every element  
5 recited by claim 2.

6 Since Tan does not anticipate claim 2, the rejection of claim 2 is  
7 improper under 35 USC § 102. Accordingly, Appellants respectfully  
8 request that the improper rejection be reversed.

9 **Claim 3 is not anticipated by Tan**

10 Tan fails to show or disclose a suction nozzle arrangement  
11 blocks a fluid entry into the channel, as recited by claim 3.

12 Even if Examiner is correct in comparing Tan's conduit 56 to the  
13 channel recited by claims 1 and 3, Tan's pilot valve 20 is not a suction  
14 nozzle arrangement. Tan's restricted orifice 40 also is not a suction  
15 nozzle arrangement. Moreover, nothing about Tan's pilot valve 20 or  
16 restricted orifice 40 blocks a fluid entry into Tan's conduit 56. Thus,  
17 Tan fails to identically show or disclose each and every element  
18 recited by claim 3.

19 Since Tan does not anticipate claim 3, the rejection of claim 3 is  
20 improper under 35 USC § 102. Accordingly, Appellants respectfully  
21 request that the improper rejection be reversed.

22 **Claim 8 cannot properly be rejected as anticipated by Tan**

23 35 USC § 132(a) requires that

24 [w]henever, on examination, any claim for a  
25 patent is rejected, or any objection or requirement  
26 made, the Director *shall* notify the applicant thereof,  
27 *stating the reasons for such rejection*, or objection or  
28 requirement, together with such information and

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1            references as may be useful in judging of the  
2            propriety of continuing the prosecution of his  
3            application[.]

4            (emphasis added).

5            Examiner rejected claim 8 as anticipated by Tan. However,  
6            claim 8 depends from claim 6. Examiner rejected claim 6 as obvious  
7            over Tan in view of Kubiak. Thus, Examiner conceded that Tan did  
8            not anticipate claim 6, or dependent claim 8.

9            Moreover, Examiner provided no grounds for rejecting claim 8  
10          as anticipated by Tan. Thus, the rejection of claim 8 fails to comply  
11          with the requirements set forth by 35 USC § 132. Since Examiner has  
12          no authority to reject a claim without stating grounds for the  
13          rejection, the rejection of claim 8 is improper and must be reversed.

14          **Claim 9 is not anticipated by Tan**

15          Tan fails to show or disclose a suction nozzle arrangement that  
16          has an annular nozzle, whose opening is directed towards the outlet  
17          connection, as recited by claim 9.

18          Even if Tan's restricted orifice 40 was mistakenly considered to  
19          be a suction nozzle, the restricted orifice 40 is not directed toward an  
20          outlet connection. If anything, Tan shows the restricted orifice 40  
21          being directed toward a longitudinal axis of Tan's outlet 16, rather  
22          than toward Tan's outlet connection "to the right of element 16" as  
23          asserted by Examiner in the Advisory Action issued December 30,  
24          2008.

25          Thus, Tan fails to identically show or disclose each and every  
26          element recited by claim 9.

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1 Since Tan does not anticipate claim 9, the rejection of claim 9 is  
2 improper under 35 USC § 102. Accordingly, Appellants respectfully  
3 request that the improper rejection be reversed.

4 **Claim 10 is not anticipated by Tan**

5 Tan fails to show or disclose a suction nozzle arrangement,  
6 which is located in a section of the flow path with reduced cross-  
7 section, as recited by claim 10.

8 As discussed above with reference to claim 1, Tan does not even  
9 show or disclose a suction nozzle arrangement located *in a flow path*  
10 between an inlet connection and an outlet connection. Much less  
11 does Tan show or disclose a suction nozzle arrangement located in a  
12 section of a flow path with *reduced cross-section*. With reference to  
13 Tan's Figure 2, even if Tan's restricted orifice 40 mistakenly was  
14 considered to be a suction nozzle arrangement, and was further  
15 mischaracterized as being located in a flow path, Tan fails to show or  
16 disclose the restricted orifice 40 being located at a reduced cross-  
17 section of a flow path. Thus, Tan fails to identically show or disclose  
18 each and every element recited by claim 10.

19 Since Tan does not anticipate claim 10, the rejection of claim 10  
20 is improper under 35 USC § 102. Accordingly, Appellants  
21 respectfully request that the improper rejection be reversed.

22 **REJECTIONS UNDER 35 USC § 103**

23 An obviousness rejection is improper unless supported by  
24 "some articulated reasoning with some rational underpinning". *KSR*  
25 *v. Teleflex*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007). A *prima*  
26 *facie* case of obviousness under 35 U.S.C. § 103(a) is not established  
27 unless the prior art would have taught or suggested the claimed

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1 subject matter *as a whole* to a person of ordinary skill in the art, at the  
2 time of the claimed invention. *In re Bell*, 991 F.2d 781, 782, 26 U.S.P.Q.  
3 1529, 1531 (Fed. Cir. 1993); *In re Rinehart*, 531 F.2d 1048, 1051, 189  
4 U.S.P.Q. 143, 146 (CCPA 1976). To establish *prima facie* obviousness  
5 of a claimed invention, all the claim limitations must be taught or  
6 suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580  
7 (CCPA 1974). "All words in a claim must be considered in judging  
8 the patentability of that claim against the prior art." *In re Wilson*, 424  
9 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

10 **Claims 6 and 7 are not obvious over Tan in view of Kubiak**

11       Claim 6 depends from claim 1.

12       Tan fails to teach or suggest a suction nozzle arrangement, as  
13 recited by claim 1. Tan also fails to teach or suggest a suction nozzle  
14 arrangement, which is located in a flow path, as further recited by  
15 claim 1.

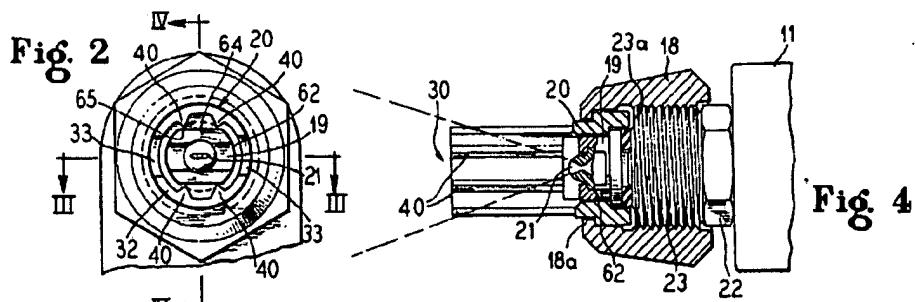
16       At most, Tan teaches a pilot valve 20, which includes a  
17 restricted orifice 40. As discussed above, Tan's restricted orifice 40 is  
18 not a suction nozzle arrangement. Further, the restricted orifice 40 is  
19 not located in a flow path such as the flow path recited by claim 1.

20       Tan fails to teach or suggest any reason why one of ordinary  
21 skill, at the time of the claimed invention, would have modified Tan's  
22 restricted orifice 40 to provide a suction nozzle arrangement. Tan  
23 entirely fails to recognize the benefits of a suction nozzle  
24 arrangement. Tan also fails to teach or suggest any reason why one  
25 of ordinary skill would have moved Tan's restricted orifice 40 into  
26 Tan's primary fluid passage, so as to approach the recitations of claim  
27 1. The intended purpose of Tan's servovalve 10 is to provide flow

1 through the primary fluid passage between Tan's inlet 14 and Tan's  
2 outlet 16. One of ordinary skill would recognize that moving the  
3 restricted orifice 40 into the outlet 16 would undesirably reduce flow  
4 through Tan's primary fluid passage (even if only by a small  
5 amount). If a proposed modification would render the prior art being  
6 modified unsatisfactory for its intended purpose, then there is no  
7 suggestion or motivation to make the proposed modification. See  
8 MPEP § 2143.01, citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125  
9 (Fed. Cir. 1984). Thus, if anything, Tan teaches away from moving the  
10 restricted orifice 40 into the primary fluid passage defined by Tan's  
11 outlet 16.

12 Kubiak likewise fails to teach or suggest a suction nozzle  
13 arrangement, a suction nozzle arrangement located in a flow path, or  
14 any reason why one of ordinary skill would have modified Tan to  
15 provide the structures recited by claim 1.

16 At most, Kubiak discloses a nozzle guard for airless spray  
17 pistols, and in particular discloses a non-circular orifice 21, as shown  
18 in Kubiak's Figures 2 and 4:



19  
20 Kubiak's non-circular orifice 21 fails to teach or suggest a  
21 suction nozzle arrangement, as recited by claim 1. In fact, Kubiak  
22 discloses providing an "extremely high pressure" of about 900 to

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1 2,900 psi across Kubiak's orifice 21. (See Kubiak, column 1, lines 31-  
2 42). Appellants respectfully submit that in view of such a large  
3 pressure differential, one of ordinary skill would see no need to  
4 provide a suction nozzle arrangement. Additionally, one of ordinary  
5 skill would not see any need for modifications to prevent reversal of  
6 flow against Kubiak's extremely high pressure differential.

7 Appellants further submit that Examiner has not provided a  
8 reasoned statement as required to support a *prima facie* case of  
9 obviousness. In particular, Examiner has not provided any reasoning  
10 to support Examiner's assertion that one of ordinary skill would be  
11 motivated to modify Tan's circular orifice 40, according to Kubiak's  
12 oval orifice 21, in order to prevent reversal of flow through the  
13 modified orifice. (See Final Office Action issued September 8, 2008,  
14 page 4).

15 For at least two reasons, one of ordinary skill would *not* find it  
16 "reasonable to modify the orifice of Tan with the teachings of  
17 Kubiak" (Final Office Action, page 2) "in order to decrease the  
18 possibility of fluid being through the nozzle in the reverse direction"  
19 (Final Office Action, page 4).

20 First, Examiner's argument about the shape of an orifice  
21 affecting reversal of flow through the orifice is contrary to common  
22 sense. One of ordinary skill would recognize that Kubiak's oval  
23 orifice 21 is not any more a check valve than is Tan's circular orifice  
24 40. Neither orifice in any way prevents reversal of flow or blocks a  
25 fluid entry into a channel.

26 Second, the proposed modification would render Tan's orifice  
27 40 unsuitable for its intended purpose of restricting flow, since Tan's  
28 control plug 82 could not reasonably be expected to reliably seal a

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1 non-round orifice. Thus, there would have been no motivation for  
2 one of ordinary skill to modify Tan as proposed by Examiner. See *In*  
3 *re Gordon*.

4 For at least these reasons, the combination of Tan and Kubiak  
5 fails to teach or suggest the recitations of claim 1 as a whole.

6 At least because claims 6-8 depend from claim 1, the  
7 combination of Tan and Kubiak also fails to teach or suggest the  
8 recitations of claims 6-8.

9 Additionally, claim 6 recites the suction nozzle arrangement of  
10 claim 1 has a pipe, which has a slot in the direction of the outlet  
11 connection.

12 Neither Tan nor Kubiak, nor even the combination thereof,  
13 teaches or suggests a pipe, which has a slot. Further, even the  
14 combination of Tan and Kubiak fails to teach or suggest a pipe, which  
15 has a slot in the direction of an outlet connection. In this regard  
16 Examiner argues that Kubiak's nozzle tip 19 is a pipe. (See Final  
17 Office Action issued September 8, 2008, page 2). In response to  
18 Examiner's argument, Appellants respectfully direct the Board's  
19 attention to the following dictionary definitions:

20 • "noz·zle (nzl) n. 1. A projecting part with an opening, as at the  
21 end of a hose, for regulating and directing a flow of fluid." nozzle  
22 - definition of nozzle by the Free Online Dictionary, Thesaurus and  
23 Encyclopedia, <http://www.thefreedictionary.com/nozzle> (last  
24 visited Feb. 26, 2009).

25 • "pipe (pp) n. 1. a. A hollow cylinder or tube used to conduct a  
26 liquid, gas, or finely divided solid." pipe - definition of pipe by the  
27 Free Online Dictionary, Thesaurus and Encyclopedia,

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1                   <http://www.thefreedictionary.com/pipe> (last visited Feb. 26,  
2                   2009).

3                   Thus, a nozzle is not a pipe.

4                   For at least this additional reason, the combination of Tan and  
5                   Kubiak fails to teach or suggest the recitations of claim 6.

6                   Since the combination of Tan and Kubiak does not render claim  
7                   6 obvious, the rejections of claims 6 and 7 are improper under  
8                   35 USC § 103. Accordingly, Appellants respectfully request that the  
9                   improper rejections be reversed.

10                  **CONCLUSION**

11                  Having shown the errors and deficiencies of the present  
12                  rejections, Appellants respectfully submit that no sufficient reason  
13                  has been shown why the present claims might not be patentable over  
14                  the cited prior art. Accordingly, Appellants respectfully urge the  
15                  Board to reverse the present rejections and to direct that all pending  
16                  claims be promptly passed to issue.

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1 Attorneys for Appellants authorized the Commissioner to  
2 charge the Appeal Brief fee of \$540.00 to our Deposit Account 13-  
3 0235, in our Appeal Brief dated April 2, 2009. Appellants believe that  
4 no additional fees presently are due in the above-identified  
5 application. However, the Commissioner is authorized to charge any  
6 additional fees that may be required to Deposit Account No. 13-0235.

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Customer No.: 35301  
McCormick, Paulding & Huber LLP  
CityPlace II, 185 Asylum Street  
Hartford, CT 06103-3402  
(860) 549-5290

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### (VIII) Claims Appendix

1. A valve arrangement with a housing, an inlet connection and an outlet connection, which are connected with each other via a flow path, in which is located a closing device, which has a valve seat and a valve element interacting with the valve seat, the valve element being loaded in the direction of the valve seat by a resetting device and being acted upon on the side facing the valve seat by a pressure in a first pressure chamber, said pressure corresponding to the pressure in the inlet connection, when the closing device is closed, and on the side facing away from the valve seat by the pressure in a second pressure chamber, which is connected with the outlet connection via a channel arrangement, in which is located at least one auxiliary valve, and with the first pressure chamber via a throttle, wherein the channel arrangement ends in a suction nozzle arrangement, which is located in the flow path.

2. The valve arrangement according to claim 1, wherein the suction nozzle arrangement has at least one suction nozzle, which is directed towards the outlet connection and has a bordering wall, whose outside is exposed to the fluid flowing in the flow path.

3. The valve arrangement according to claim 2, wherein the suction nozzle arrangement blocks a fluid entry into the channel.

4. The valve arrangement according to claim 1, wherein the suction nozzle arrangement is connected with the housing in at least two positions.

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1           5. The valve arrangement according to claim 1, wherein the  
2           suction nozzle arrangement has a body, which is located in extension  
3           of a pilot valve seat of the auxiliary valve.

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5           6. The valve arrangement according to claim 1, wherein the  
6           suction nozzle arrangement has a pipe, which has a slot in the  
7           direction of the outlet connection.

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9           7. The valve arrangement according to claim 6, wherein the  
10          pipe is connected with the channel on a frontside.

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12          8. The valve arrangement according to claim 6, wherein the  
13          pipe is located in the area of a diameter of the outlet connection.

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15          9. The valve arrangement according to claim 1, wherein the  
16          suction nozzle arrangement has an annular nozzle, whose opening is  
17          directed towards the outlet connection.

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19          10. The valve arrangement according to claim 1, wherein the  
20          suction nozzle arrangement is located in a section of the flow path  
21          with reduced cross-section.

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## **(IX) Evidence Appendix**

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**None.**

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**(X) Related Proceedings Appendix**

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None.